warringtonfire
Proud to be part of element

Fire resistance test report

Issuing laboratory: Warringtonfire Testing and Certification Limited

Test standard:	BS EN 1365-1:2012 Corr 2013
Test sponsor:	Intelligent Membranes Ltd
Product:	Asymmetric loadbearing wall comprised of a timber stud OSB panel coated with ‘FRED’
Report number:	WF538940
Test date:	18 January 2024
Version:	1

Warringtonfire, accredited for compliance with ISO/IEC 17025:2017 – Testing

Approved Body Number 1314

Quality management

Version	Date	Information about the report			
1	13 May 2024	Description	Initial issue		
			Prepared by	Reviewed by	Authorised by
		Name	Christopher Mitchell	Adriano Montanino	Dr Vic Kearley
		Signature	DocuSigned by: 81AF8765BF014F4...	DocuSigned by: 0612F5967A5B4AA...	DocuSigned by: BD42E1D79327418...

Signed for and on behalf of Warringtonfire Testing and Certification Limited

Contents

1. Introduction

Figure 1 Unexposed face photograph of test construction

This report documents the findings of the fire resistance test of an asymmetric loadbearing wall comprised of a layer of OSB and an intumescent coating on timber studs in accordance with BS EN 1363-1:2020 'Fire resistance tests - Part 1: General requirements and BS EN 1365-1:2012 Corr 2013 'Fire resistance tests for loadbearing elements Part 1: Walls'

Warringtonfire performed the test on 18 January 2024 at the request of the test sponsor listed in Table 1.

Table 1 Test sponsor details

Test sponsor	Address
Intelligent Membranes Limited	Clopton Farm, Lower Road, Croydon, Cambridgeshire, SG8 0EF United Kingdom

2. Test measurements and results

Table 2 summarises the results achieved by the test specimen against the performance criteria listed in BS EN 1363-1:2020 and BS EN 1365-1:2012 Corr 2013 for the following parameters:

- Load Bearing Capacity – The specimen must support its test load, without exceeding the limit of vertical contraction (negative elongation) [C_{limit} = *h* / 100 mm], or the limit of rate of vertical contraction (negative elongation) [$(dC / dt)_{limit}$ = 3*h* / 1000 mm/min], where '*h*' is the initial height (in mm) of the test specimen once the load has been applied as specified in BS EN 1363-1:2020.
- Integrity – The specimen must retain its separating function, without causing either ignition of a cotton pad when applied, or permitting the penetration of a gap gauge as specified in BS EN 1363-1:2020, or resulting in sustained flaming on the unexposed surface. Integrity failure also occurs simultaneously with Load bearing as specified in BS EN 1363-1:2020.
- Insulation – The mean temperature rise (ΔTm) of the unexposed surface must not be greater than 140°C and the maximum temperature rise (ΔTM) must not be greater than 180°C. Insulation failure also occurs simultaneously with integrity failure as specified in BS EN 1363-1:2020.

Appendix A includes observations of any significant behaviour of the specimen and details of the occurrence of the relevant performance criteria.

Appendix B details the location of the instrumentation used during the test.

Appendix C includes details of the measurements taken during the test.

Appendix D includes photographs of the test specimen before, during and after the test.

Table 2 Detailed test results

Performance criteria	Results
Test duration	The test was discontinued after a duration of 25 (twenty-five) minutes
Load Bearing Capacity:	
C_{limit} = *h* / 100 mm	24 (twenty-four) minutes*
$(dC / dt)_{limit}$ = 3*h* / 1000 mm/min	24 (twenty-four) minutes*
Integrity:	
Sustained flaming	24 (twenty-four) minutes#
Failure with gap gauge	24 (twenty-four) minutes#
Cotton pad failure	24 (twenty-four) minutes#
Thermal insulation:	
ΔTm = 140°C	23 (twenty-three) minutes
ΔTM = 180°C	24 (twenty-four) minutes#
Notes:	
The test results for the specimen only apply to the tested orientation. The specimen was not evaluated for insulation or integrity performance within 150mm of the free edge as defined in BS EN 1365-1:2012 Corr 2013. '*' Loadbearing capacity failure was deemed to have occurred by virtue of the loadbearing test criteria evaluation being stopped after 24 minutes of testing. '#' indicates failure due to load bearing capacity failure.	

3. Test specimen and supporting construction

3.1 Summary of test specimen

Table 3 Summary of tested specimen

Test specimen			
Summary	Asymmetric Loadbearing Wall with an overall dimensions of 3005 mm wide x 2600 mm high x 105 mm thick comprised of an 11 mm thick OSB panel layer coated with a nominally 3 mm thick layer of FRED (water-borne intumescent coating) on C-16 timber studs with a dimension of 39 mm wide x 91 mm deep.		
Overall size	**Height**	**Width**	**Depth**
	2600 mm	3005 mm	105mm
Restraint conditions	Both vertical edges of the wall system remained unrestrained. Due to the wall system being oversized, the gap on the vertical edges was not measurable. The top and bottom edges of the wall system were compression fitted between the top edge of the restraint frame and the timber bedding plate.		

3.2 Drawings of test assembly

The leaders in the drawings (Figures 2 - 4) represent the items listed in Section 3.3. All measurements are in millimetres – unless indicated otherwise.

The drawings were supplied by the test sponsor and verified by Warringtonfire (unless stated otherwise in Section 2.2).

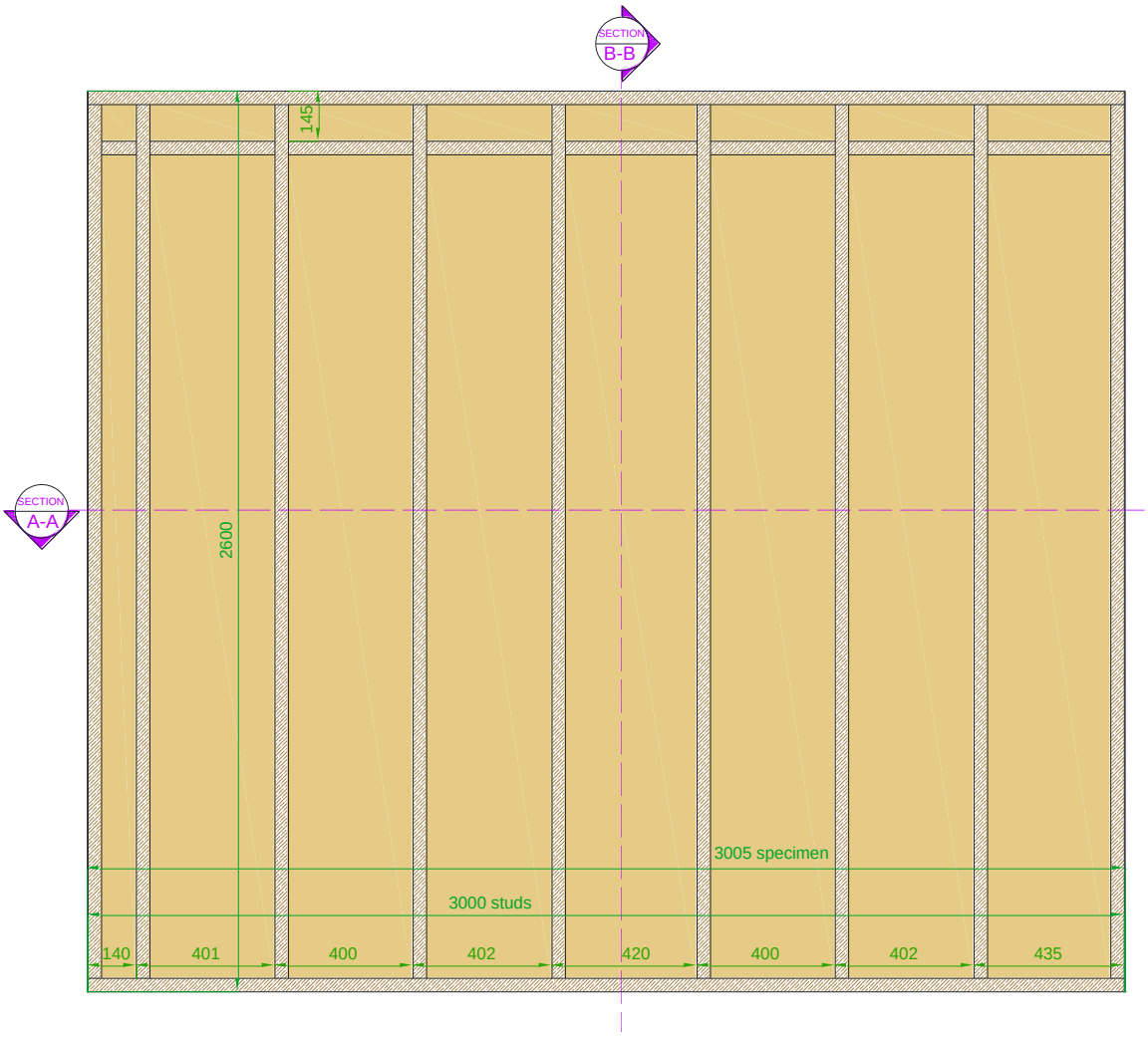

Figure 2 Unexposed Elevation – General elevation of the test construction

Do not scale. All dimensions in mm

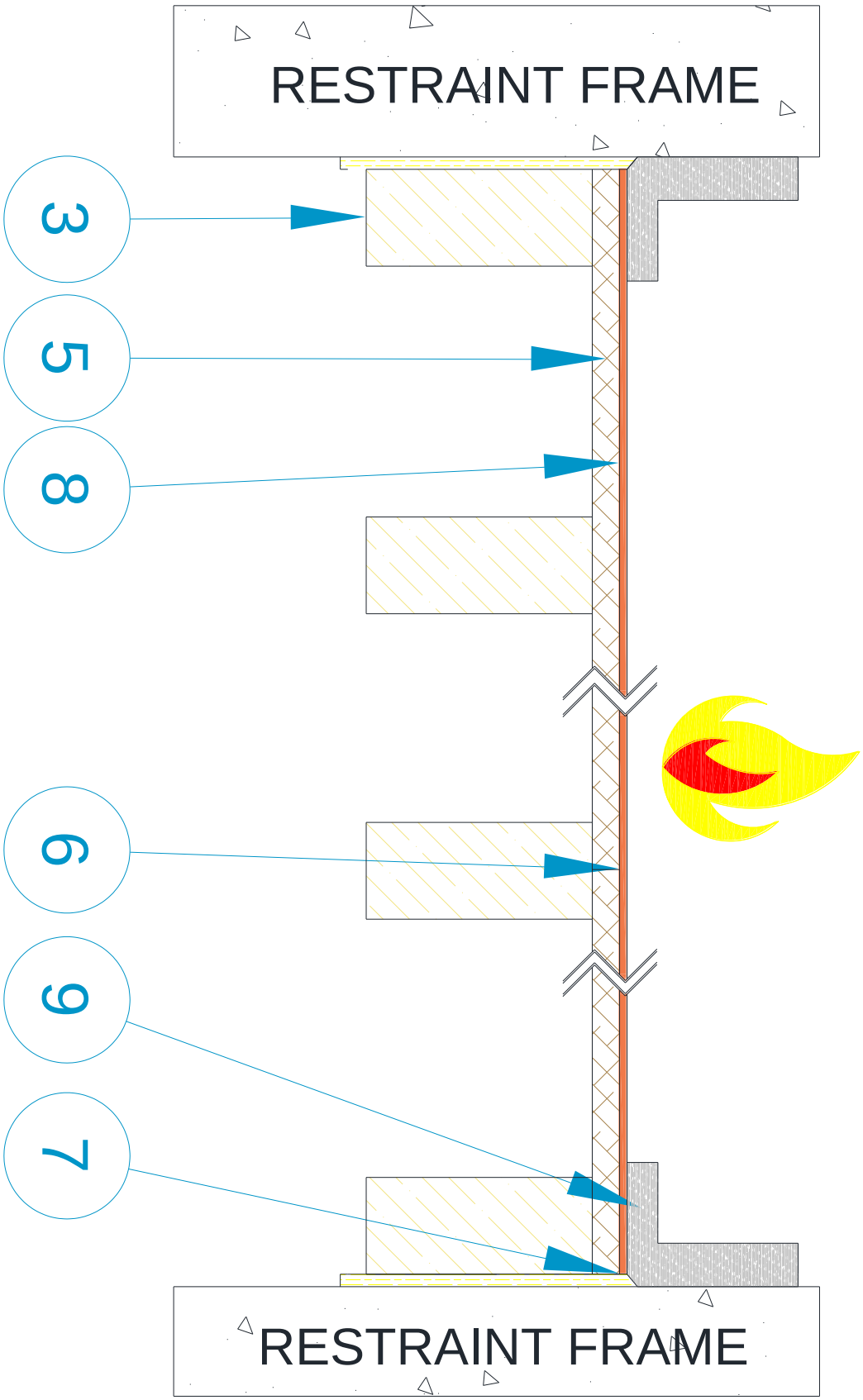

Figure 3 Cross section A – A

Do not scale.

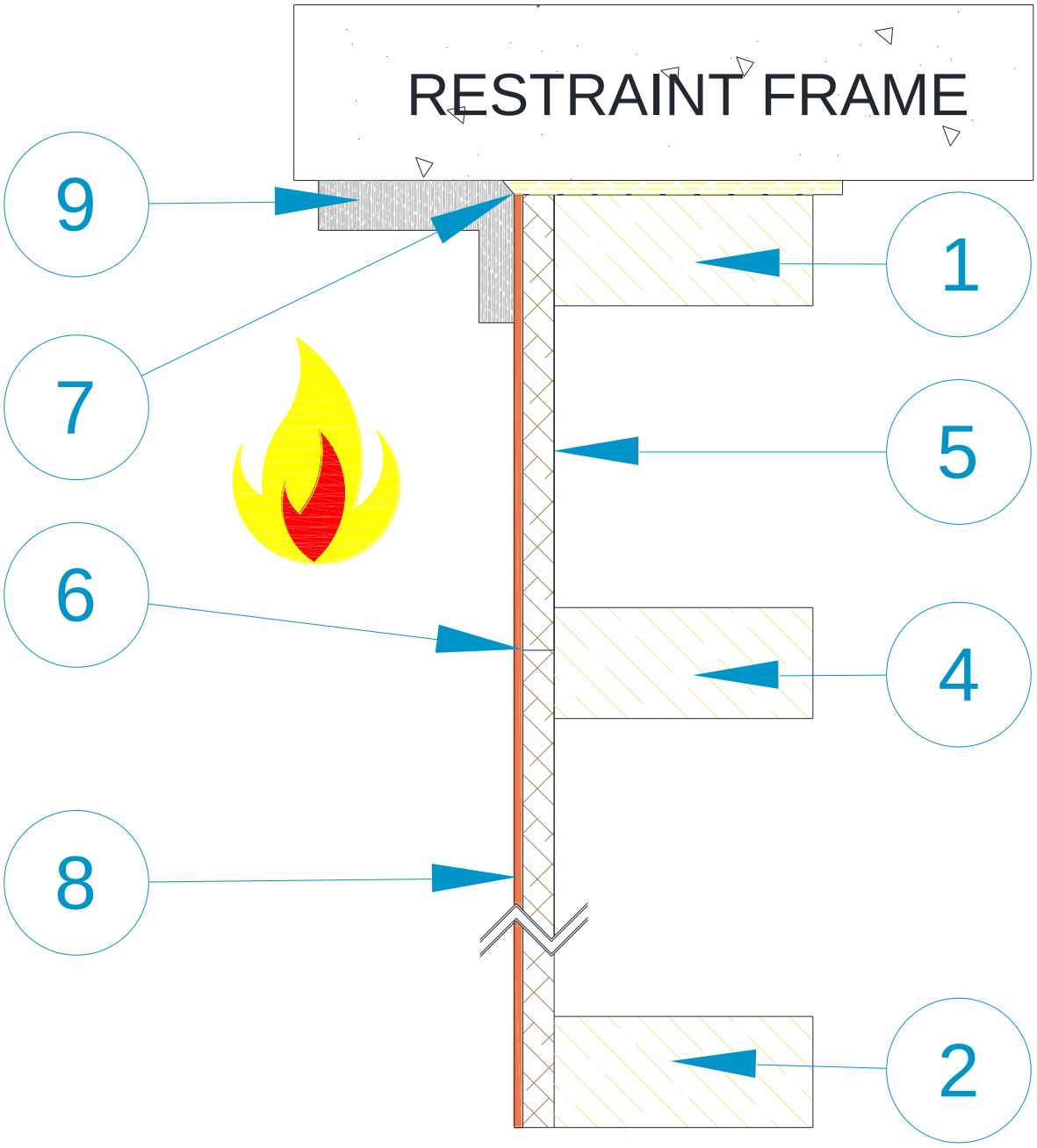

Figure 4 Cross section B – B

Do not scale.

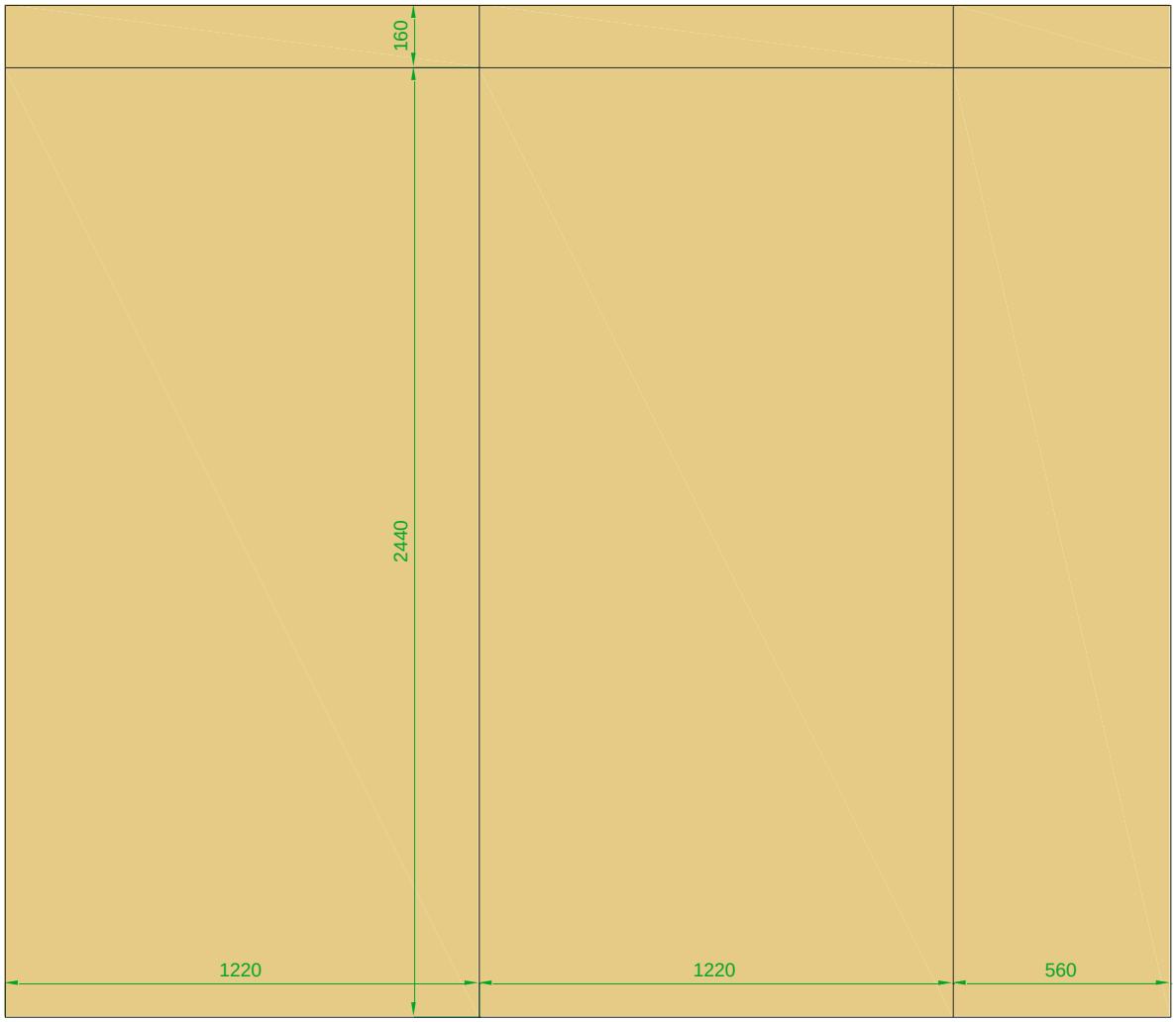

Figure 5 Arrangement of OSB Panels, viewed from the exposed face

Do not scale. All dimensions in mm

3.3 Schedule of components

Table 4 details the schedule of components which describes the test specimen and lists the components used in the construction of the test specimen. These were provided by the test sponsor and surveyed by Warringtonfire.

All measurements were verified by Warringtonfire unless stated otherwise in the schedule of components. All components marked with an "*" have not been verified by Warringtonfire.

Table 4 Schedule of components

1. Head plate		Description
Manufacturer or supplier	:	Vida Wood
Reference	:	CLS C16
Material	:	Pine/Spruce
Density	:	310 kg/m^3*
Moisture content	:	17%*
Overall size		
• Depth	:	91 mm
• Height	:	39 mm
• Width	:	3000 mm
Fixing Method to restraint frame and centres	:	Not fixed to restraint frame
2. Base Plate		**Description**
Manufacturer or supplier	:	Vida Wood
Reference	:	CLS C16
Material	:	Pine/Spruce
Density	:	310 kg/m^3*
Moisture content	:	17%*
Overall size		
• Depth	:	91 mm
• Height	:	39 mm
• Width	:	3000 mm
Fixing Method to restraint frame and centres	:	Not fixed to restraint frame

3. Vertical main studs		Description
Manufacturer or supplier	:	Vida Wood
Reference	:	CLS C16
Material	:	Pine/Spruce
Location and spacing	:	140, 401, 400, 402, 420, 400, 402, 435 mm spacing, starting from left hand side as viewed from unexposed face
Density	:	310 kg/m^3*
Moisture content	:	17%*
Overall size		
• Depth	:	91 mm
• Height	:	2522 mm
• Width	:	39 mm
Details of fixings to head and base track		
• Manufacturer	:	Young Black*
• Reference	:	31x88d34gsc*
• Type & material	:	Galvanised screw nail*
• Overall size	:	3.1 mm Ø x 88 mm long*
4. Noggins		**Description**
Manufacturer or Supplier	:	Vida Wood
Reference	:	CLS C16
Material	:	Pine/Spruce
Location	:	Located 145 mm from the head of the wall between the vertical studs – Refer to Figure 2
Density	:	310 kg/m^3*
Moisture content	:	17%*
Overall size		
• Depth	:	91 mm
• Height	:	39 mm
• Width	:	Distance between vertical studs
Details of fixings to vertical studs		
• Manufacturer	:	Young Black*
• Reference	:	31x88d34gsc*
• Type & material	:	Galvanised screw nail*
• Overall size	:	3.1 mm Ø x 88 mm long*

5. First layer of board applied to the internal framing exposed face		Description
Supplier	:	Norbord (West Fraser) *
Reference	:	SterlingOSB Zero*
Material	:	OSB 3
Individual board dimension	:	2440 mm high x 1220 mm wide x 11 mm thick
Overall dimension	:	2440 mm high x 1220 mm wide x 11 mm thick – Refer to Figure 5
Moisture content (%)	:	16%*
Board weight	:	20.24 kg per sheet*
Details of fixings to internal framing		
• Manufacturer	:	Young Black*
• Reference	:	28x50fawgr/sc2*
• Type & material	:	Galvanised Ring Nail*
• Overall size	:	2.8 mm Ø x 50 mm long*
• Spacing	:	Nominally 75 mm*
6. Jointing tape (1)		**Description**
Manufacturer	:	Intelligent Membranes*
Reference	:	75 mm Fleece tape*
Material	:	Polymer film*
Location	:	Centrally to board joints of OSB, on the exposed face of the panels*
7. Jointing tape (2)		**Description**
Manufacturer	:	Intelligent Membranes
Reference	:	100 mm Fleece tape*
Material	:	Polymer film
Location	:	Centrally to the perimeter of the specimen as shown in Figure 27
8. Coating		**Description**
Manufacturer	:	Intelligent Membranes
Reference	:	FRED
Material	:	Water-borne intumescent coating
Location	:	On the exposed face of the specimen
Application method	:	Brush
Nominal application thickness	:	3 mm*
Details of repair	:	There were hairline cracks present along some of the studs of the specimen. These were filled and painted over with additional FRED, due to the small scale of these repairs it is not deemed to have impacted the overall nominal thickness of the coating layer

9. Fire Stopping		Description
Manufacturer	:	CCEWOOL
Reference	:	Ecological fiber blanket
Material	:	Ceramic Fiber – composed majorly of silica and calcium oxide
Density	:	128 kg/m^3
Location	:	Around the vertical edges and head of the specimen – See Figure 26
Overall size	:	
• Length	:	Cut into sections around the perimeter of the specimen
• Width	:	150 mm
• Thickness	:	25 mm

4. Test procedure

Table 5 details the test procedure for this fire resistance test.

Table 5 Test procedure

Item	Detail	
Test standard	The test was performed in accordance with BS EN 1363-1:2020 'Fire resistance tests - Part 1: General requirements and BS EN 1365-1:2012 Corr 2013 'Fire resistance tests for loadbearing elements Part 1: Walls'.	
Product standard and/or EAD	The test sponsor did not provide an instruction to work in accordance with a product standard.	
EGOLF agreements and/or recommendations	Certain aspects of some fire test specifications are open to different interpretations. EGOLF have identified a number of these areas and have agreed on resolutions which define a common agreement of interpretations between fire test laboratories that are members of the group. If such resolutions apply to this test, they have been followed.	
Deviations from test method	As a result of the applied load being on the lower end of the equipment's operating range, the load applied to the specimen dropped below the lower tolerance limit defined in BS EN 1363-1:2020 from 3 minutes until 12 minutes of testing.	
Instrumentation and equipment	The instrumentation was provided in accordance with BS EN 1365-1:2012 Corr. 2013 and BS EN 1363-1:2020.	
Pre-test conditioning	The test specimen was subjected to normal laboratory temperatures and conditions between the completion of construction of the test specimen and the start of the test.	
Installation details	The specimen was received pre-assembled and delivered during January 2024. The specimen was installed directly into a refractory line steel restraint frame, fitted centrally to a steel spreader beam by representatives of Warringtonfire with assistance from representatives of the sponsor. The gaps between the specimen and the restraint frame were filled with mineral wool, nominal density 33kg/m³, to prevent flames coming around the edge of the specimen and also to allow free movement of the wall specimen. There was additional fire stopping on the exposed face as stated in the technical specification (Item 9) and Figure 26	
Symmetry	Asymmetrical. The direction of exposure was decided by the test sponsor.	
Ambient laboratory temperature	Start of the test	12.1°C
	Minimum temperature	10.4°C
	Maximum temperature	12.1°C
Sampling / specimen selection	Warringtonfire was not involved in factory sampling of the products and materials used for the test specimen described in this report, and as such the results of this test apply to the sample as received.	

5. Application of test results

5.1 Field of direct application

BS EN 1363-1:2020, Fire resistance tests - Part 1: General requirements, states within Section 12.1, Clause v) that “The field of direct application of the results taken from the appropriate standard (or the test method) for the specimen being evaluated, either in the form of the full text from the appropriate standard or only those clauses which are relevant for the specimen tested” shall be included within the test report. The full text of the field of direct application for the results of the specimen being evaluated herein, can be found within the appropriate test standard, which is referenced on the front cover of this report.

5.2 Validity

This document is the original version of this test report and is written in English. In case of doubt, the original version prevails over a translation. This document is issued subject to Warringtonfire’s standard terms and conditions, which are available at: *Terms and Conditions | Element*.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criteria for assessing the potential fire hazard of the product in use, nor can the results be extrapolated and applied to other products.

Reports are statements of fact(s) prepared in accordance with the referenced version of the standard(s) stated in Section 4 of this report. Reports are based upon the information provided to Warringtonfire. Warringtonfire takes no responsibility for the accuracy or completeness of such information.

The results stated in this report apply to the test specimen as received.

This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in BS EN 1365-1:2012 Corr 2013, BS EN 1363-1:2020.

Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report.

Any differences in relation to the aforementioned characteristics may significantly affect the performance and will therefore invalidate the application of the test results to the variant product. It is recommended that any proposed variation to the tested configuration or product should be referred to the test sponsor. The test sponsor should then obtain appropriate documentary evidence of compliance from Warringtonfire or another accredited testing authority. The supplier of the product is responsible for ensuring that the product which is supplied for use is identical to the test specimens that were tested.

The specification and the interpretation of fire test methods are both the subject of ongoing development and refinement. Changes in the applicability of the results of tests in relation to associated legislation may also occur. For these reasons the currency and the relevance of test reports should be considered by the user.

The test report also relates only to the sample(s) of the product submitted to the test. The laboratory accepts no responsibility for the representativeness of the test specimens unless so stated in the test report.

Confidence that the product that is supplied to the market will have the performance indicated in the test report can be supported by use of third-party certification schemes.

The report is issued for the benefit of Warringtonfire’s direct customer only, and may not be relied upon by any third parties without Warringtonfire’s express written consent.

5.3 Uncertainty of measurement

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

Appendix A Test observations

Table 6 shows the observations of any significant behaviour of the specimen during the test.

Figure 6 shows a diagram of the panels as referenced in Table 7

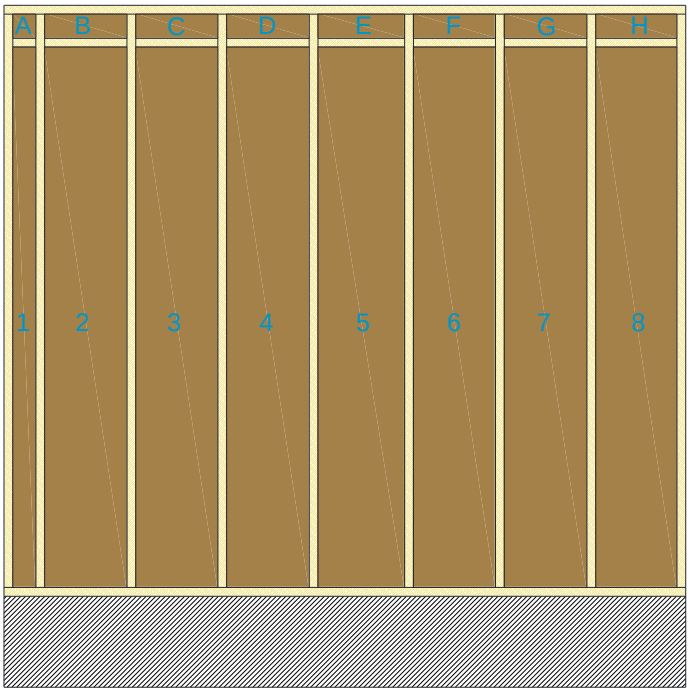

Figure 6 Panel Arrangement for observations

Do not scale.

Table 6 Test observations

Min	Sec	Observation
00	00	Commencement of test.
05	30	There is smoke issuing at the top of panels 2,3,4,5,7,8
06	55	There is smoke issuing at the lower end of 2,3,4,7,8
11	38	There is an increase in smoke issuing at all previous points
15	01	There is smoke issuing at the stud between panels 2 and 3, approximately 80 mm from the base on the right-hand side and approximately 500 mm from the base on the left-hand side
18	08	There is discolouration at the smoke issuing points between panels 2 and 3
18	38	There is an increase in smoke issuing at all points
19	36	There is discolouration at the top right corner of panel 4
20	13	There is discolouration at the top right corner of panel 6
20	45	There is discolouration at the top left corner of panel 5
23	50	There is a glow visible at the top right corner of panel 6
24	51	There is a glow visible at the top right corner of panel 4
25	**26**	**There is continuous flaming at the left-hand side of the stud between panels 2 and 3, thereby constituting integrity failure**
25	31	Test terminated.

Appendix B Instrumentation locations

Figure 7 shows the instrumentation locations for this fire resistance test.

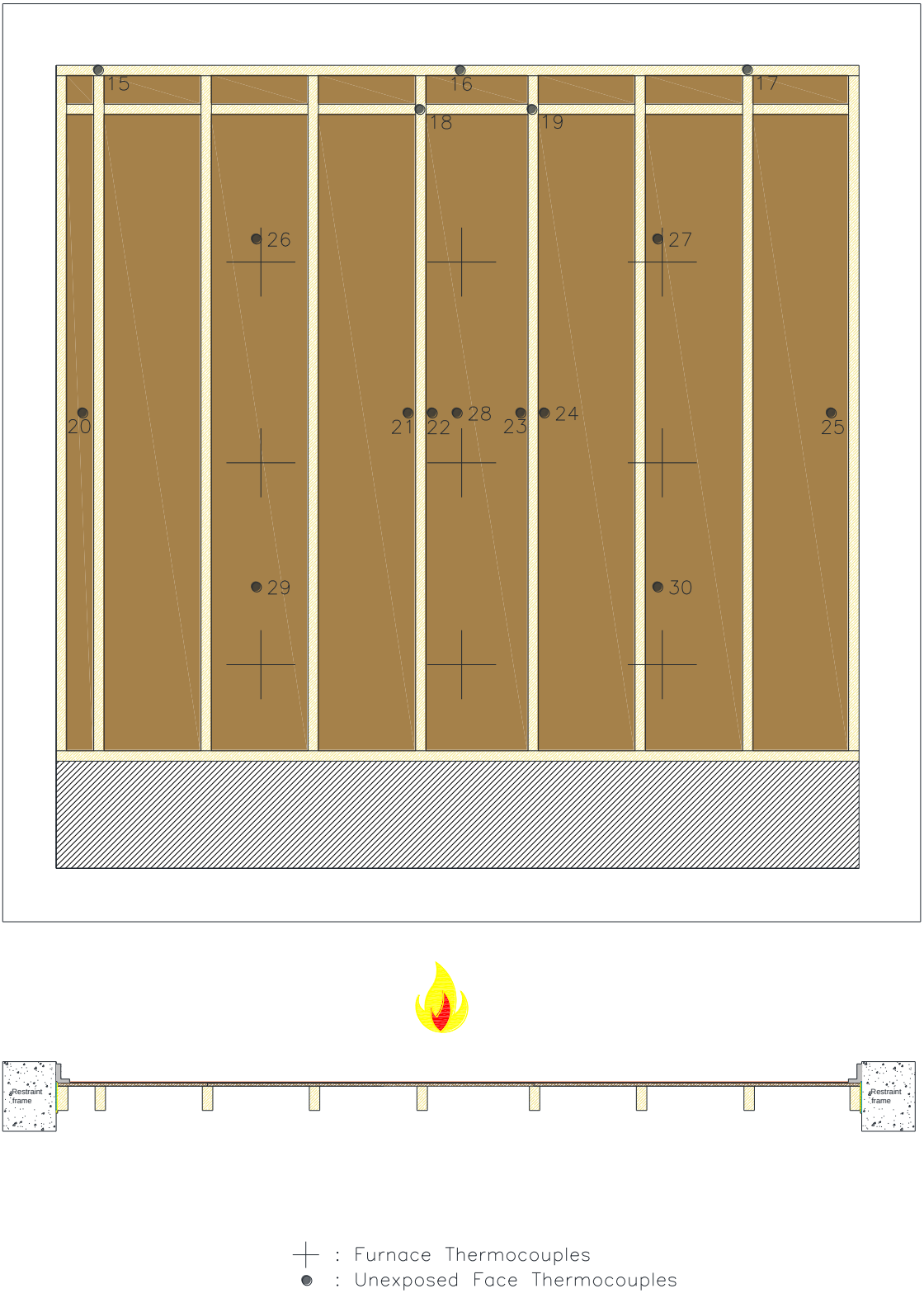

Figure 7 Instrumentation locations

Do not scale.

Appendix C Test data

C.1 Furnace temperature and deviation

The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2020 Clause 5.1 using nine plate thermometers, distributed over a plane 100 ± 50 mm from the surface of the test construction.

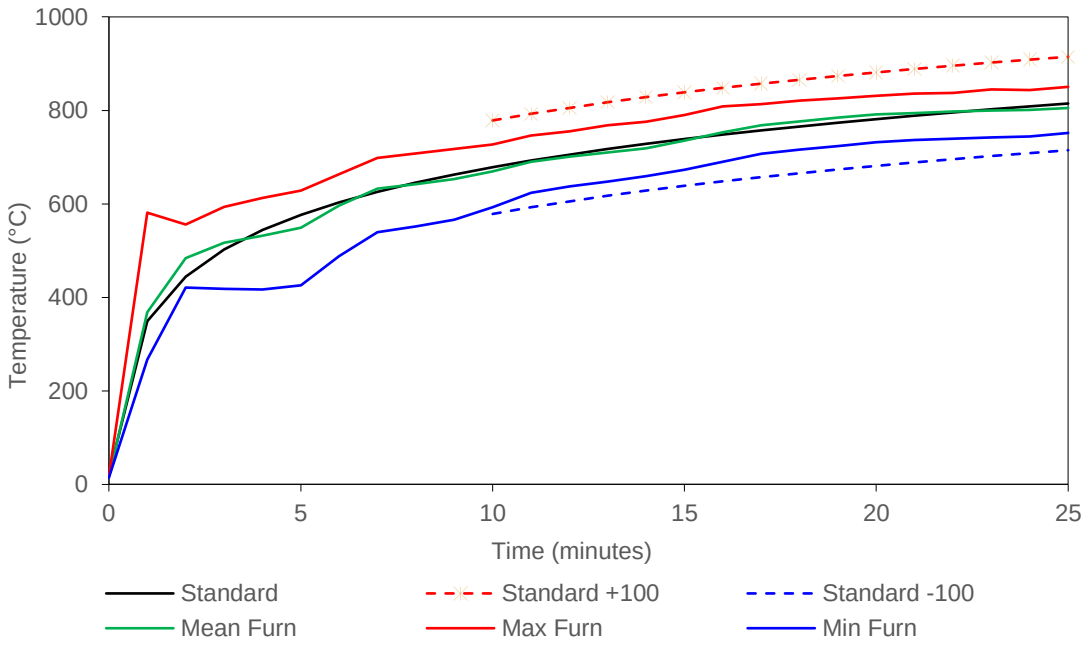

Figure 8 Furnace thermocouple temperature vs time

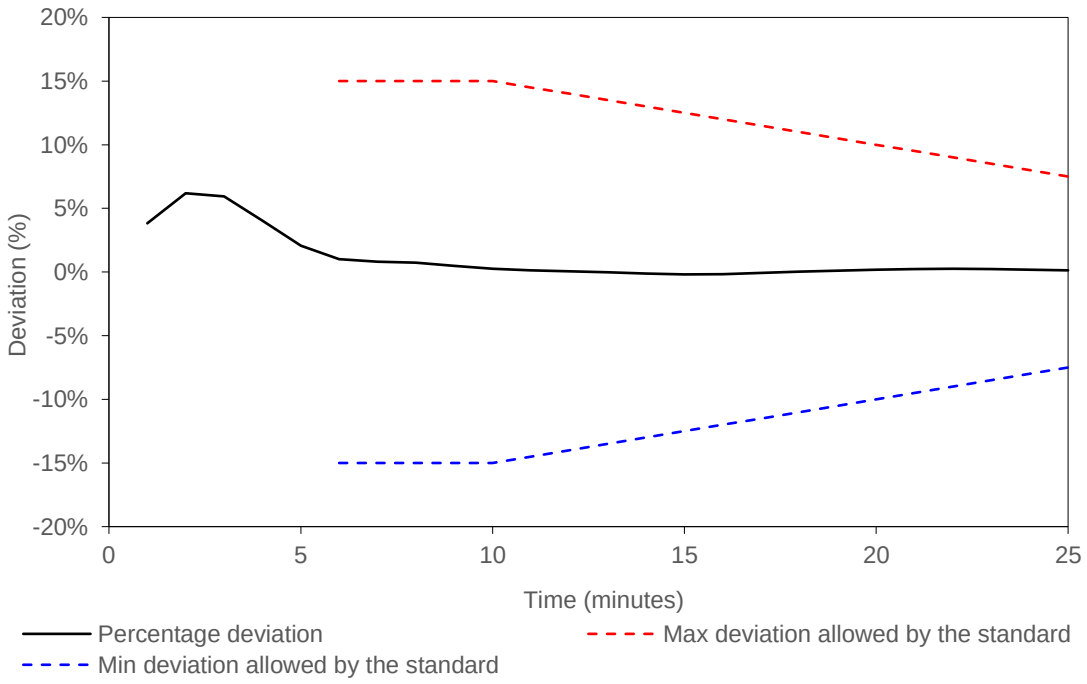

Figure 9 Percentage deviation of exposure severity vs time

C.2 Furnace pressure

The furnace pressure was taken at approximately 500 mm above the base of the specimen.

The furnace was controlled to a pressure of -1.3 throughout the test, restricted to ± 5 Pa after the first 5 minutes of testing and ± 3 Pa after the first 10 minutes of testing, equating to a pressure of 20 Pa at the head of the specimen as defined in BS EN 1363-1:2020.

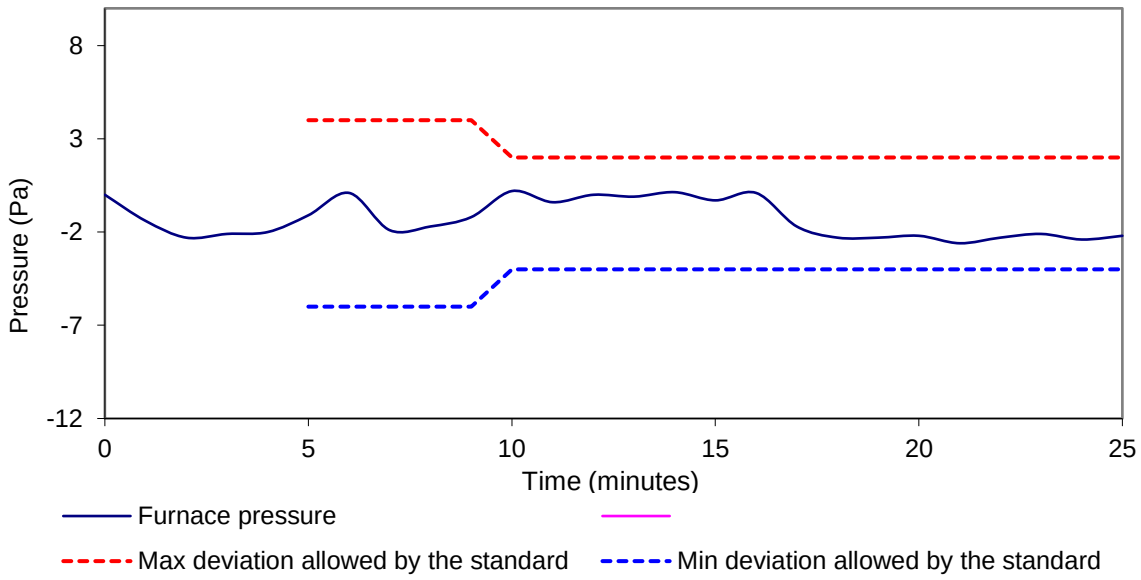

Figure 10 Furnace pressure

C.3 Load application and deflection measurements

The specimen was loaded from below using 3 No. hydraulic jacks. The load was transferred to the specimen using a steel/timber spreader beam. The specimen was loaded along the centre line to 25.52 kN total imposed load. This equates to 8.5 kN per hydraulic ram ±5% as recognised by the standard. Allowing for the self-weight to the wall and the spreader beam, this represents an imposed load of 24 kN in accordance with the client's request.

The specimen was loaded for a minimum of 15 minutes before the test commenced.

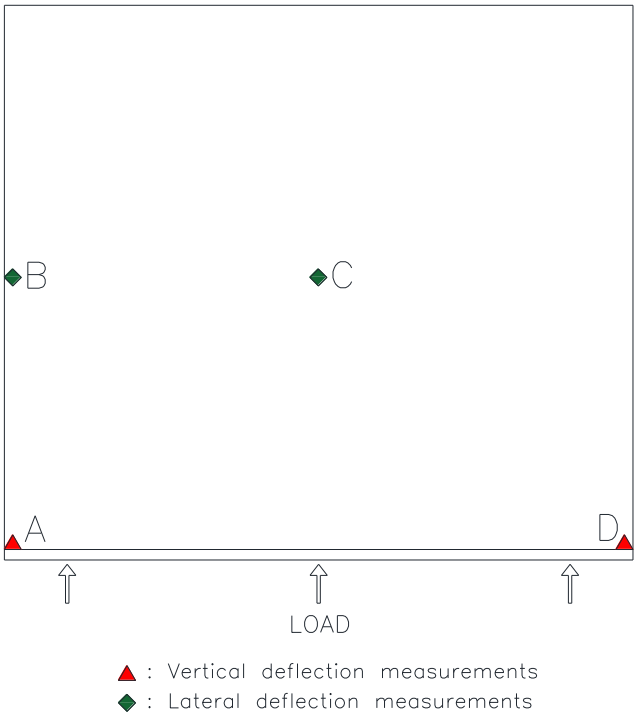

Figure 11 Position of deflection measurements and load

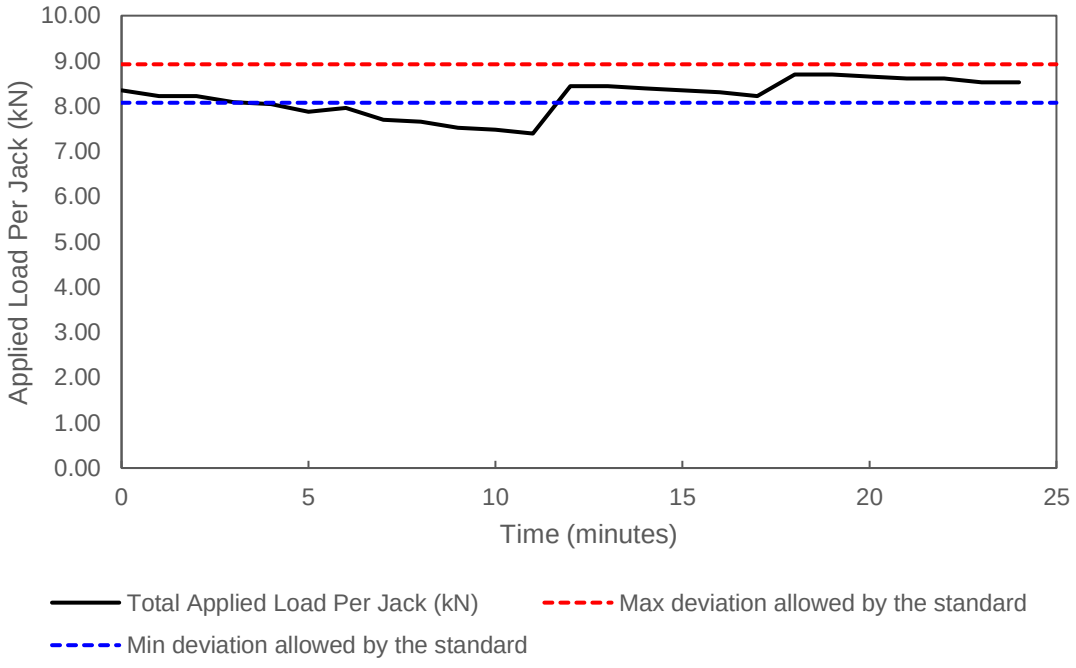

Figure 12 Graph showing the total load applied per loading jack with the associated tolerances as specified in BS EN 1363-1:2020

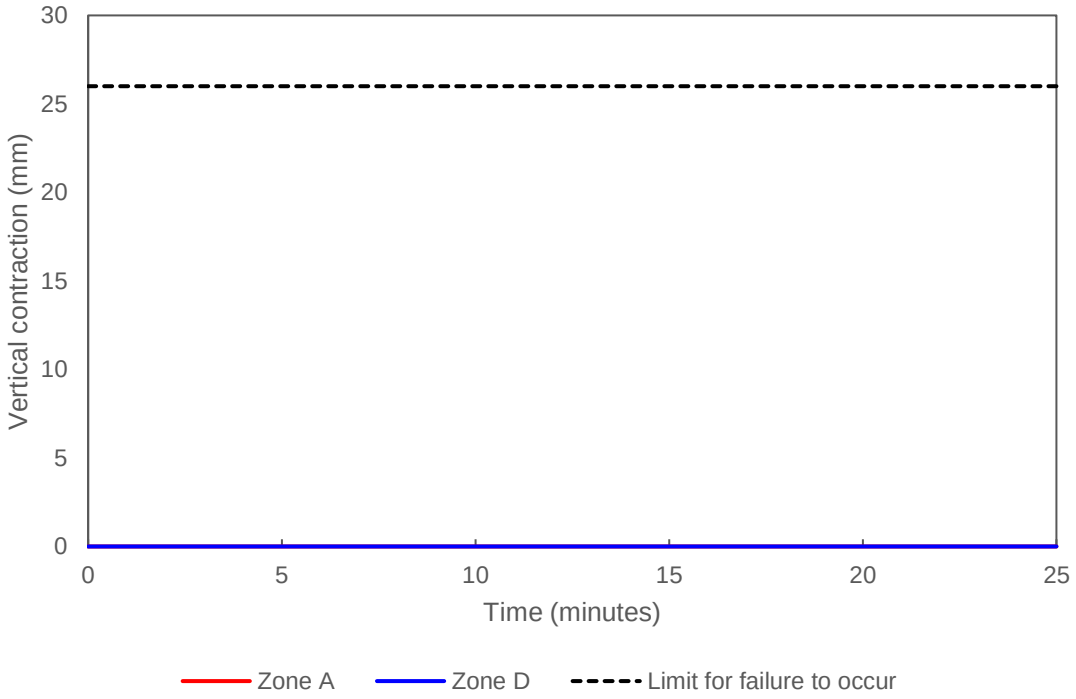

Figure 13 **Graph showing vertical contraction of the specimen at Zones A and D and the limit for failure to have occurred**

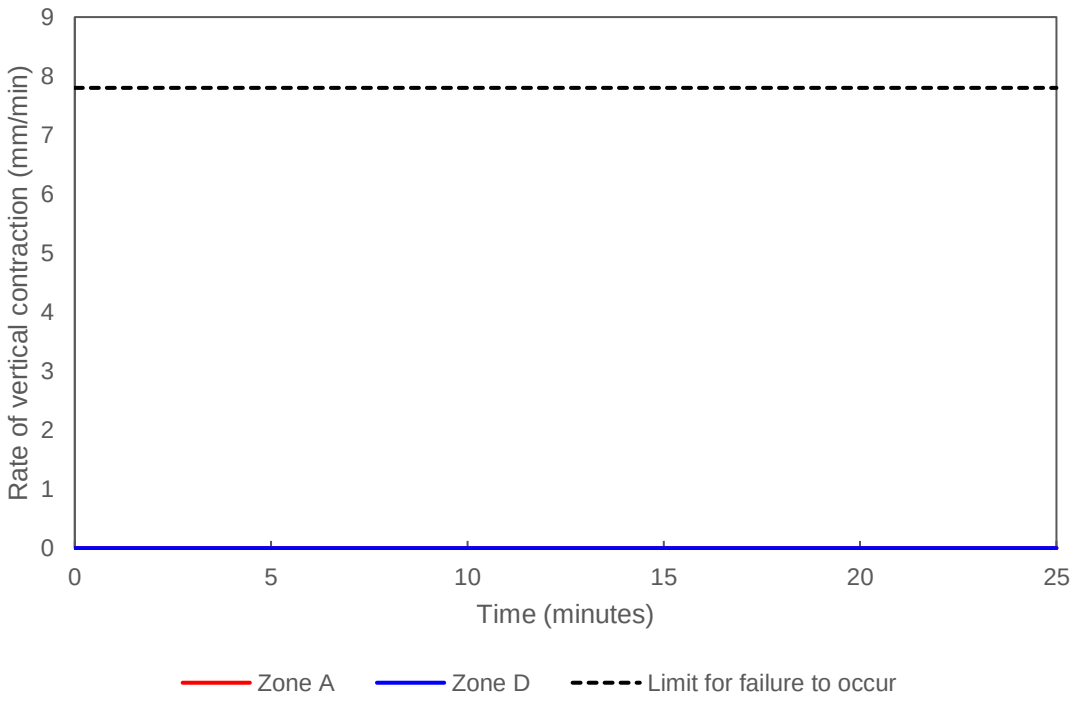

Figure 14 **Graph showing rate of vertical contraction of the specimen at Zones A and D and the limit for failure to have occurred**

Table 7 details the load application and deflection measurements of the test specimen at locations given in Figure 11.

For lateral deflection, negative measurements show movement of the test specimen away from the furnace. Positive measurements show movement of the test specimen towards the furnace.

For vertical contraction, negative measurements show an increase in the test specimens height. Positive measurements show a drop in the test specimens overall height.

Table 7 Load applied and specimen deflections

Time (mins)	Applied Load Per Jack (kN)	Vertical contraction (mm)		Rate of vertical contraction (mm/min)		Lateral deflection (mm)	
		Zone A	Zone D	Zone A	Zone D	Zone B	Zone C
0	8.35	0	0	0	0	0	0
1	8.22	0	0	0	0	0	0
2	8.22	0	0	0	0	0	0
3	8.09	0	0	0	0	0	0
4	8.05	0	0	0	0	0	0
5	7.87	0	0	0	0	0	0
6	7.96	0	0	0	0	0	0
7	7.70	0	0	0	0	0	0
8	7.66	0	0	0	0	0	0
9	7.52	0	0	0	0	0	0
10	7.48	0	0	0	0	0	0
11	7.39	0	0	0	0	0	0
12	8.44	0	0	0	0	0	0
13	8.44	0	0	0	0	0	0
14	8.39	0	0	0	0	0	0
15	8.35	0	0	0	0	0	0
16	8.31	0	0	0	0	0	0
17	8.22	0	0	0	0	0	0
18	8.70	0	0	0	0	0	0
19	8.70	0	0	0	0	0	0
20	8.66	0	0	0	0	0	0
21	8.61	0	0	0	0	0	0
22	8.61	0	0	0	0	0	0
23	8.53	0	0	0	0	0	0
24	8.53	0	0	0	0	0	0
25	*	0	*	0	*	0	0

Note: '*' Data could not be safely recorded due to the integrity failure of the specimen.

C.4 Specimen temperatures

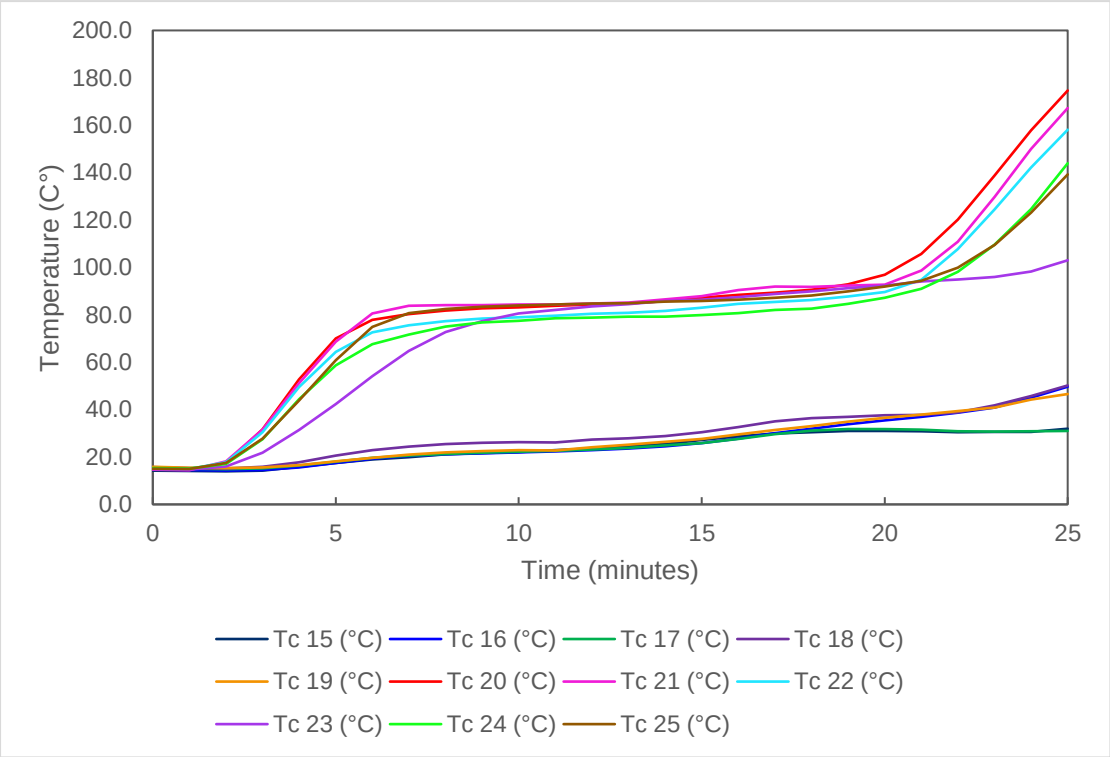

Figure 15 Individual unexposed face temperatures recorded at the maximum locations.

Table 8 Individual unexposed face temperatures recorded at the maximum locations.

Time (mins)	Tc 15 (°C)	Tc 16 (°C)	Tc 17 (°C)	Tc 18 (°C)	Tc 19 (°C)	Tc 20 (°C)	Tc 21 (°C)	Tc 22 (°C)	Tc 23 (°C)	Tc 24 (°C)	Tc 25 (°C)
0	14.2	14.8	15.3	15.7	15.9	14.7	14.6	15.1	14.9	15.3	15.1
1	14.1	14.5	15.0	15.3	15.5	14.7	14.4	15.0	14.7	15.1	15.0
2	14.0	14.3	14.9	15.2	15.3	17.5	18.1	17.8	16.0	17.1	17.5
3	14.3	14.6	15.2	15.9	15.6	31.7	31.5	30.5	21.8	27.5	27.7
4	15.8	15.6	16.4	17.8	16.6	52.8	51.2	49.5	31.4	44.4	43.8
5	17.6	17.5	18.0	20.5	18.2	70.1	68.7	64.4	42.3	58.7	60.9
6	19.0	19.2	19.7	23.0	19.7	77.8	80.6	72.6	54.0	67.6	74.9
7	19.9	20.4	20.6	24.4	21.0	80.3	83.9	75.5	64.8	71.6	80.7
8	21.1	21.1	21.3	25.5	22.0	81.8	84.1	77.3	72.8	75.1	82.4
9	21.7	21.6	21.9	26.0	22.5	82.8	84.1	78.5	77.3	76.7	83.4
10	22.0	22.0	22.3	26.3	23.0	83.2	84.4	79.0	80.5	77.5	83.9
11	22.9	22.4	22.7	26.2	22.8	83.8	84.3	79.7	82.1	78.6	84.4
12	23.6	22.9	23.2	27.3	24.2	84.3	84.7	80.5	83.5	78.8	84.8
13	24.6	23.6	23.8	27.9	25.3	84.8	85.2	80.8	84.4	79.2	84.9
14	25.4	24.6	24.9	28.8	26.5	85.9	86.5	81.6	85.8	79.3	85.5
15	27.3	25.9	25.9	30.5	27.7	87.2	87.9	82.9	86.4	79.9	85.8
16	28.7	27.8	27.7	32.6	29.5	88.4	90.4	84.6	87.5	80.7	86.4
17	30.0	30.1	29.6	35.0	31.4	89.3	92.0	85.5	88.9	82.0	87.2
18	30.5	32.0	31.2	36.4	33.0	90.6	91.8	86.3	89.9	82.6	88.2
19	30.9	33.9	31.8	36.9	34.9	92.9	92.4	87.8	91.2	84.7	89.9
20	31.1	35.4	31.8	37.6	36.5	96.9	92.8	89.6	92.3	87.1	91.9
21	30.8	36.9	31.6	37.7	37.9	105.7	98.6	94.8	94.1	91.0	94.4
22	30.5	38.6	30.9	38.8	39.3	120.1	110.9	107.8	94.9	98.2	99.9
23	30.6	40.9	30.7	41.8	40.9	138.8	129.7	124.5	95.9	109.7	109.5
24	30.6	45.0	30.9	45.7	44.2	157.8	150.0	142.2	98.2	124.6	123.2
25	31.9	49.7	31.0	50.2	46.6	174.6	167.2	158.1	103.0	143.9	139.2

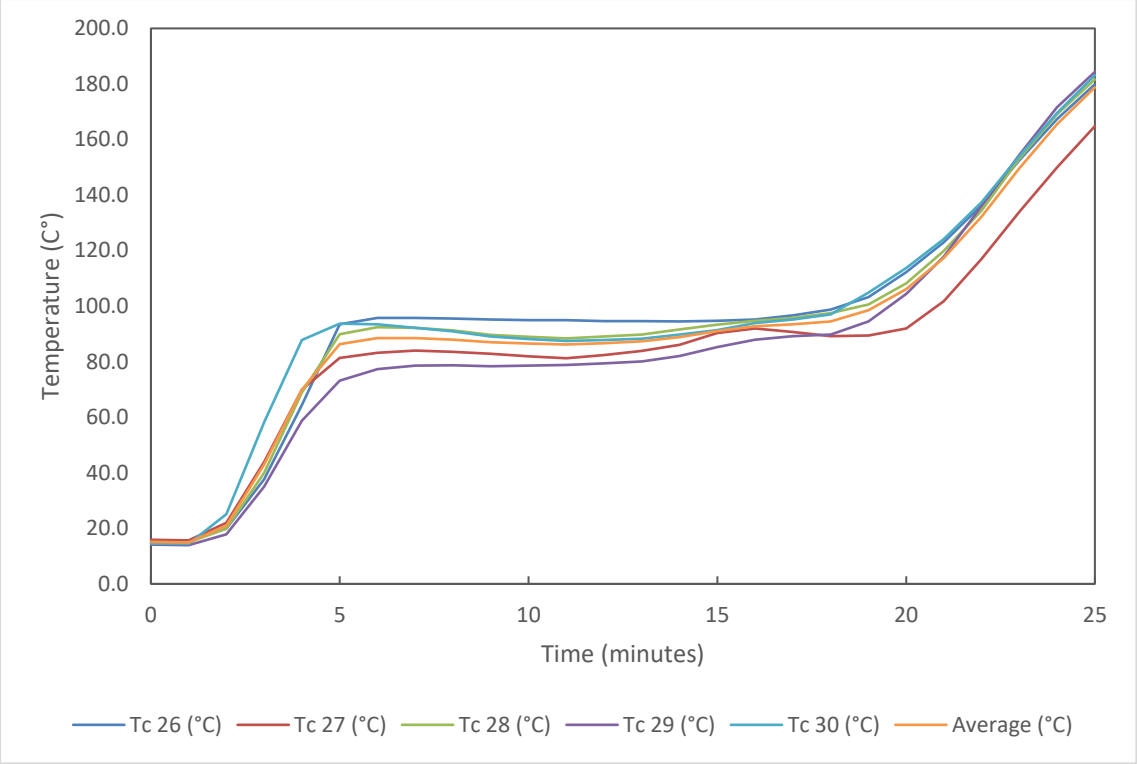

Figure 16 **Individual and mean unexposed face temperatures recorded at the average locations.**

Table 9 **Individual and mean unexposed face temperatures recorded at the average locations.**

Time (mins)	Tc 26 (°C)	Tc 27 (°C)	Tc 28 (°C)	Tc 29 (°C)	Tc 30 (°C)	Average (°C)
0	15.7	15.9	15.1	14.2	14.5	15.1
1	15.5	15.7	14.9	13.9	14.4	14.9
2	19.9	22.0	19.9	17.8	25.2	21.0
3	37.7	43.9	39.9	35.0	58.2	43.0
4	64.5	70.0	68.9	58.8	87.9	70.0
5	93.4	81.3	89.9	73.2	93.7	86.3
6	95.8	83.3	92.4	77.4	93.5	88.5
7	95.8	84.1	92.2	78.6	92.2	88.6
8	95.5	83.5	91.3	78.7	90.9	88.0
9	95.2	82.8	89.7	78.4	89.1	87.0
10	95.0	82.0	88.9	78.6	88.2	86.5
11	94.9	81.3	88.4	78.8	87.4	86.2
12	94.7	82.4	89.1	79.4	87.8	86.7
13	94.6	83.9	89.7	80.1	88.2	87.3
14	94.5	86.1	91.6	82.1	89.8	88.8
15	94.7	90.3	93.4	85.3	91.3	91.0
16	95.2	91.9	94.7	87.9	94.0	92.7
17	96.7	90.7	95.7	89.2	95.2	93.5
18	98.8	89.2	97.5	89.8	97.0	94.5
19	103.3	89.4	100.6	94.5	104.9	98.5
20	112.3	91.9	108.2	104.4	113.8	106.1
21	122.9	101.7	119.8	117.8	124.2	117.3
22	136.4	117.0	134.4	136.0	137.3	132.2
23	152.5	133.9	153.0	154.4	154.0	149.6
24	167.4	150.0	169.1	171.6	169.6	165.5
25	179.9	164.8	181.7	184.4	183.2	178.8

Appendix D Photographs

Figure 17 Unexposed face of the specimen before the start of the test

Figure 18 Exposed face of the specimen before the start of the test (support bar and clamp removed prior to fitting onto furnace as well as the addition of fire stopping around the vertical edges and head)

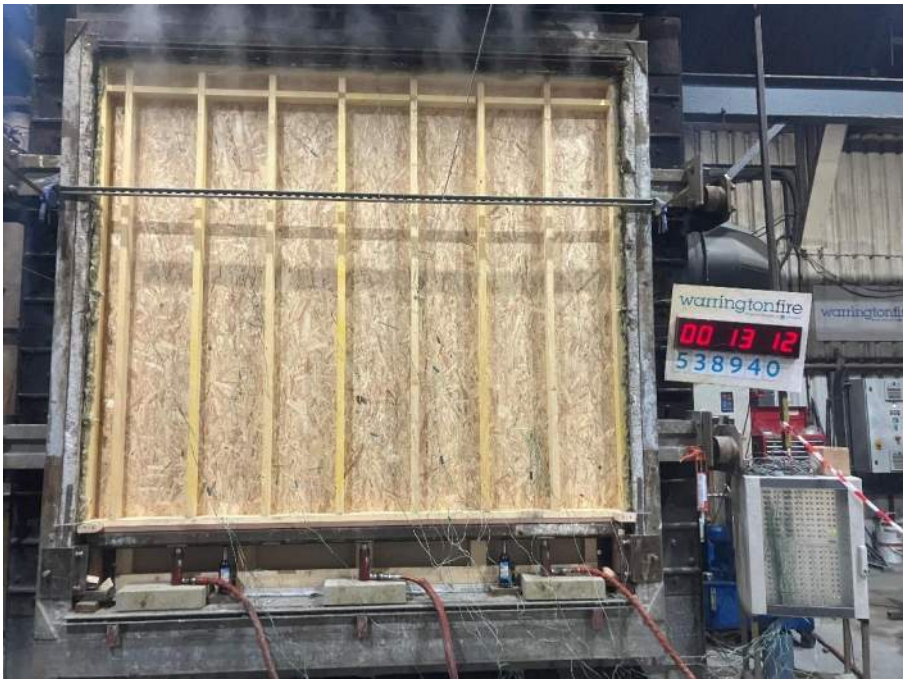

Figure 19 Unexposed face of the specimen after 13:12 minutes of testing

Figure 20 Unexposed face of the specimen after 15:00 minutes of testing

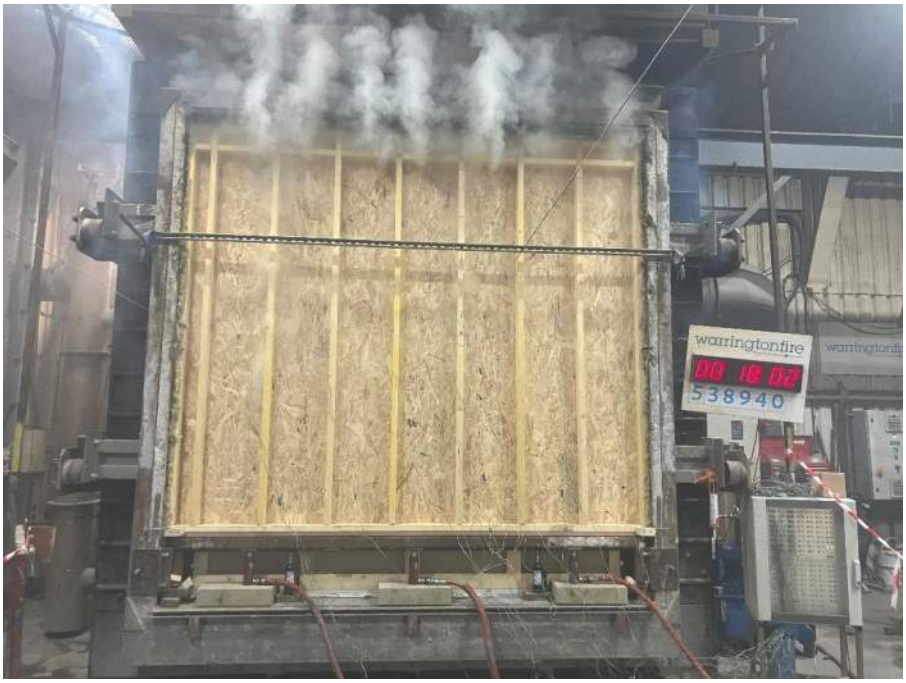

Figure 21 Unexposed face of the specimen after 18:02 minutes of testing

Figure 22 Unexposed face of the specimen after 22:02 minutes of testing

Figure 23 Unexposed face of the specimen after 23:00 minutes of testing

Figure 24 Unexposed face of the specimen after the test

Figure 25 Exposed face of the specimen after the test

Figure 26 Photo showing fire stopping added to the perimeter of the specimen before the start of the test

Figure 27 Photo showing fleece tape applied to external edges of the specimen

warringtonfire
Proud to be part of element

Registered office:

Warringtonfire Testing and Certification Limited
3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7HA, United Kingdom
Registered Company No. 11371436

Name & address of issuing laboratory:

Warringtonfire Testing and Certification Limited
Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND, United Kingdom

Location of performance of laboratory activities:

Warringtonfire Testing and Certification Limited
Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4ND, United Kingdom

Fire resistance laboratory locations:

High Wycombe, United Kingdom
UKAS accredited laboratory 1762
T - +44 (0) 1494 840 780

Warrington, United Kingdom
UKAS accredited laboratory 0249
T: +44 (0) 1925 655 116

Gent, Belgium
BELAC accredited laboratory 196-TEST
T: +32 9 243 77 50

Tisselt, Belgium
BELAC accredited laboratory 196-TEST
T: +32 9 243 77 50

Heywood, United Kingdom
UKAS accredited laboratory 0249
T - +44 (0) 1925 655 116

General conditions of use